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NEW RECORDS OF PRAYING MANTIS (MANTODEA) FROM THAILAND

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Summary. Five species of praying mantis, namely *Didymocorypha lanceolata* (Fabricius, 1798); *Parapsychomantis vietnamensis* Shcherbakov, 2017; *Paratoxodera meggitti* Uvarov, 1927; *Stenotoxodera porioni* Roy, 2009 and *Toxodera fimbriata* Werner, 1930, are recorded from Thailand for the first time. All species are illustrated and briefly described.

Key words: Iridinae, Acromantinae, Toxoderinae, distribution, new record, South-East Asia.

Т. Уннахачоте, Ю. Самунг, С. Венгсосорн, В. Ятронг. Новые указания богомоловых (Mantodea) из Таиланда // Дальневосточный энтомолог. 2019. N 395. С. 23-32.

Резюме. Впервые из Таиланда указываются пять видов богомоловых: *Didymocorypha lanceolata* (Fabricius, 1798), *Parapsychomantis vietnamensis* Shcherbakov, 2017, *Paratoxodera meggitti* Uvarov, 1927, *Stenotoxodera porioni* Roy, 2009 и *Toxodera fimbriata* Werner, 1930. Для всех видов приводятся иллюстрации и краткие описания.

INTRODUCTION

Mantodea is known as the predatory insects and can be found mostly in the tropical rainforests (Mukherjee *et al*., 1995). Recently, over 2,000 species, 450 genera, 59 subfamilies in 29 families are known through the distribution range (Wu & Liu, 2017; Schwarz & Roy, 2019). Among them, approximately 300 species were recorded in Southeast Asia and 75 species, 47 genera in 10 families have been recorded from Thailand (Mukherjee *et al*., 1995; Roy, 2009; Sureshan & Sambath, 2009; Ehrmann, 2002; Mukherjee *et al*., 2014; Ehrmann & Borer, 2015; Ghate *et al*., 2019; Mukherjee *et al*., 2017; Schwarz & Ehrmann, 2017; Schwarz

et al., 2018; Vermeersch *et al*., 2019). Five new to Thailand species of the praying mantis are found in the collection of the Natural History Museum of the National Science Museum. The list of these species is given in the present paper.

MATERIALS AND METHODS

This study was mainly based on specimens deposited in the Natural History Museum of the National Science Museum, Thailand. Male genitalia were removed from the tip of abdomen then put in 10% KOH solution for one day, and put in Glycerine for detail observation. Most morphological observation was made with a ZEISS Dicovery.V12 stereomicroscope. The images of body were taken by a Nikon AF-S Micro NIKKOR 60mm lens attached to a Nikon D7200. Images of genitalia were taken by a Nikon Digital Sight-Ri1 camera attached to a Nikon AZ100M stereoscope.

Acronyms of materials depository: **BMNH** – Natural History Museum, London; **MNHN** – National Museum of Natural History, France; **NHRS** – Swedish Museum of Natural History, Stockholm, Sweden; **ZIN** – Zoological Institute of the Russian Academy of Sciences; **ZMUC** – Zoological Museum, University of Copenhagen; **THNHM** – Thailand Natural History Museum.

Terminology for genitalia follows Schwarz & Roy (2019) and Brannoch *et al.* (2017): **aafa** – anterior lobe of phalloid apophysis; **afa** – phalloid apophysis; **fda** – main posterior lobe of right phallomere; **loa** – membranous lobe; **paa** – apical process of left phallomere; **pafa** – posterior lobe of phalloid apophysis; **pva** – ventral process; **sdp** – secondary distal process.

NEW RECORDS

Family Eremiaphilidae Saussure, 1896

Subfamily Iridinae Westwood, 1894

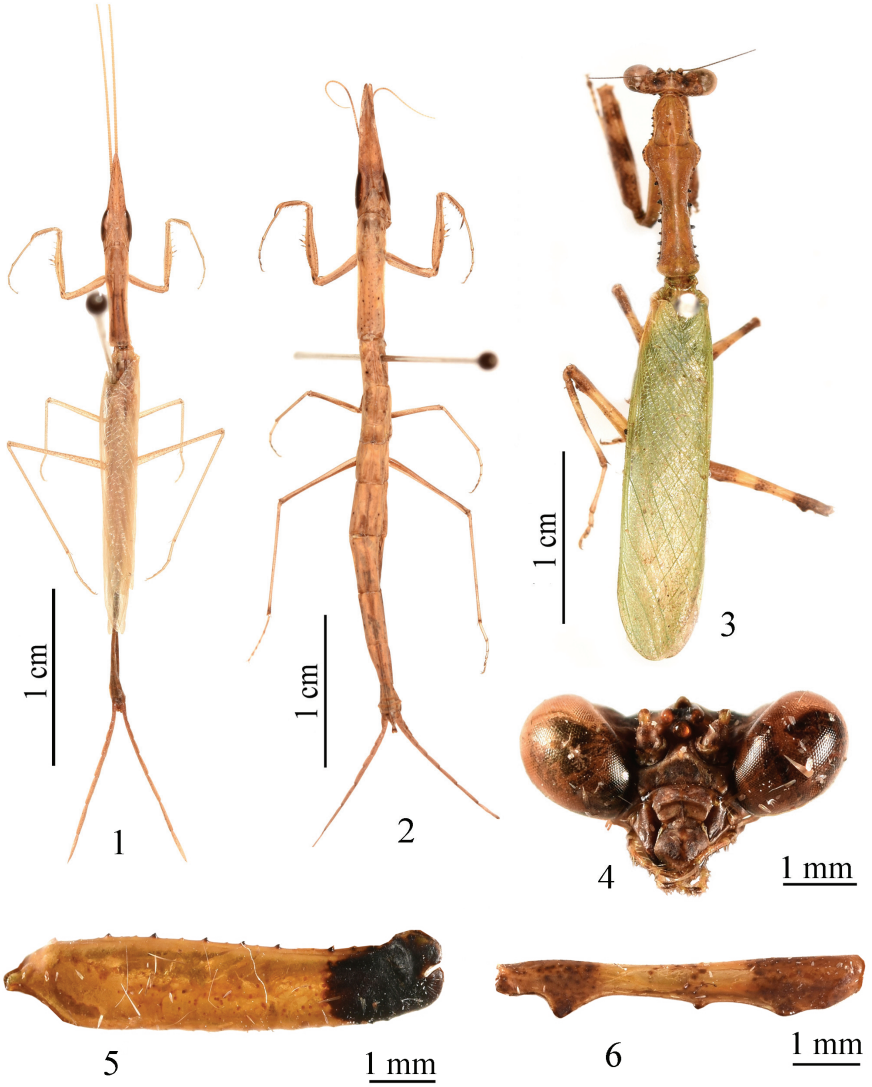
Tribe Didymocoryphini Schwarz et Roy, 2019

***Didymocorypha lanceolata* (Fabricius, 1798)**
Figs 1–2, 13

Mantis lanceolata Fabricius, 1798: 191. Type locality: INDIA (ZMUC).
Didymocorypha lanceolata: Ehrmann 2002: 123.

MATERIAL EXAMINED. **Thailand**: Lopburi province, Chai Badan district, 16.VI 2018, 4 males (THNHM-I-10809 to THNHM-I-10812, THNHM) and 2 females (THNHM-I-10807 to THNHM-I-10808, THNHM), P. Chantakul leg.; Nakhon Ratchasima province, Muang district, Behind Khorat Fossil Museum, 27.VIII.2019, 1 female (THNHM-I-11836), W. Jaitrong & T. Jeenthong leg.

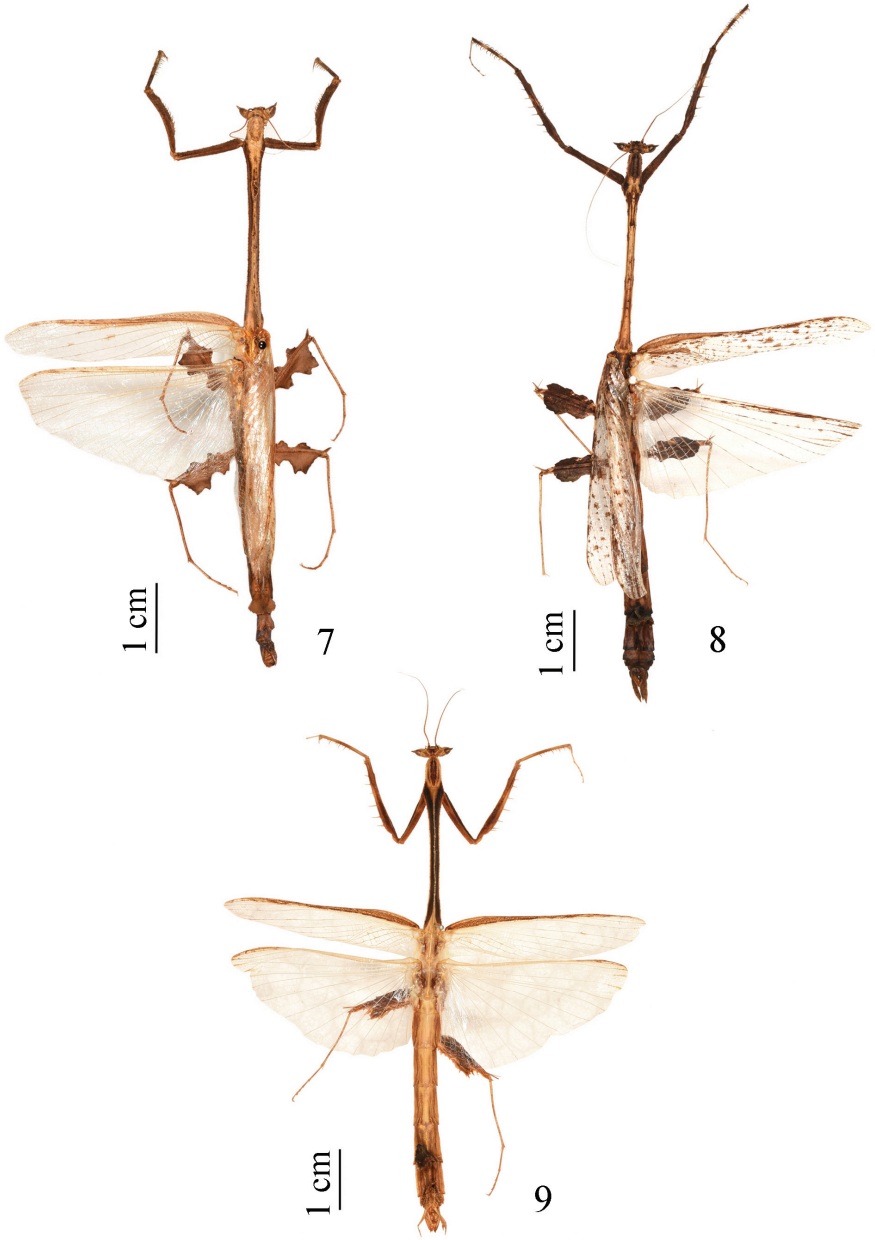
DIAGNOSIS. Both male and female are small and slender. ***Adult male***. Smaller than female; head in dorsal view, elongate and subtriangular, clearly longer than broad; antenna filiform; compound eye elongately oval and weakly convex; pronotum in dorsal view, relatively long, subrectangular, with sides weakly concave and anterior margin roundly convex; wings present; fore leg short; middle leg and hind leg slender; all legs with dense small black spots; cerci very long, flat and ensiform. ***Adult female***. Similar to the male in body shape, with the following differences that should be noted: wings clearly absent; pronotum in dorsal view, with parallel sides. ***Male genitalia***. Right phallomere: **fda** elongate; **pva** sclerotized. Ventral phallomere: **sdp** sclerotized, short and curve, with acute projection. Left phallomere: **pafa** spiny; **aafa** absent; **loa** brush-like; **paa** elongated and curved.



Figs 1–6. Praying mantis. 1, 2 – *Didymocorypha lanceolata*: 1 – male, dorsal view; 2 – female, dorsal view; 3–6 – *Parapsychomantis vietnamensis* male: 3 – body, dorsal view; 4 – head, full-face view; 5 – fore coxa, ventral view; 6 – middle femur, ventral view.

DISTRIBUTION. Thailand (**new record**). – India, Nepal, Sri Lanka (Sureshan & Sambath, 2009; Ehrmann, 2002).

REMARK. We found this species in grassland nearby agricultural area in central and northeastern Thailand. In laboratory we fed it with springtails and adult fruit flies.



Figs 7–9. Praying mantis, male body, dorsal view. 7 – *Paratoxodera meggitti*; 8 – *Stenotoxodera porioni*; 9 – *Toxodera fimbriata*, body in dorsal view.

Family Hymenopodidae Giglio-Tos, 1915

Subfamily Acromantinae Brunner de Wattenwyl, 1893

Tribe Acromantini Brunner de Wattenwyl, 1893

Parapsychomantis vietnamensis **Shcherbakov, 2017**
Figs 3–6, 14

Parapsychomantis vietnamensis Shcherbakov, 2017: 416, figs 1–4, 7, 20–21, 28–29, 37–39. Type locality: Vietnam, Binh Phuoc, Dong Nai and Lam Dong provinces (ZIN, holotype male and paratype female).

MATERIAL EXAMINED. **Thailand**: Chanthaburi province, Soi Dao district, Pa Tong subdistrict, Soi Dao Waterfall 13°05′49′′N, 102°10′20′′E, 17.V 2008, 1 male (THNHM-I-11042, THNHM), T. Jeenthong leg.

DIAGNOSIS. ***Adult male***. Head wider than broad, vertex with tubercle above ocelli, compound eye large, oval and strongly convex; pronotum elongated, lateral margin of prozona and metazona with small blunt spine and large tubercles respectively; wings present, not truncate at tip, hind wing transparent; ground color of fore coxa yellowish brown, except the apical portion with black mark ventrally; fore femur slightly convex before middle; postero-ventral margin of middle femur with three lobes, distal lobe largest; cerci cylindrical. ***Male genitalia***. Right phallomere, **fda** elongate, **pva** well sclerotized strongly curved. Ventral phallomere, **sdp** present, short. Left phallomere, **paa** and **afa** present, short.

DISTRIBUTION. Thailand (**new record**). – Vietnam (Shcherbakov, 2017).

REMARK. We found a specimen of the species deposited in the THNHM that was collected in Chanthaburi province, Eastern Thailand in lowland dry evergreen forest.

Family Toxoderidae Saussure, 1869

Subfamily Toxoderinae Saussure, 1869

Tribe Toxoderini Saussure, 1869

Paratoxodera meggiti **Uvarov, 1927**
(Figs 7, 10, 15)

Paratoxodera meggitti Uvarov, 1927: 658. Type locality: Burma [Myanmar] (BMHN, holotype male); Ehrmann, 2002: 272; Roy, 2009: 159.

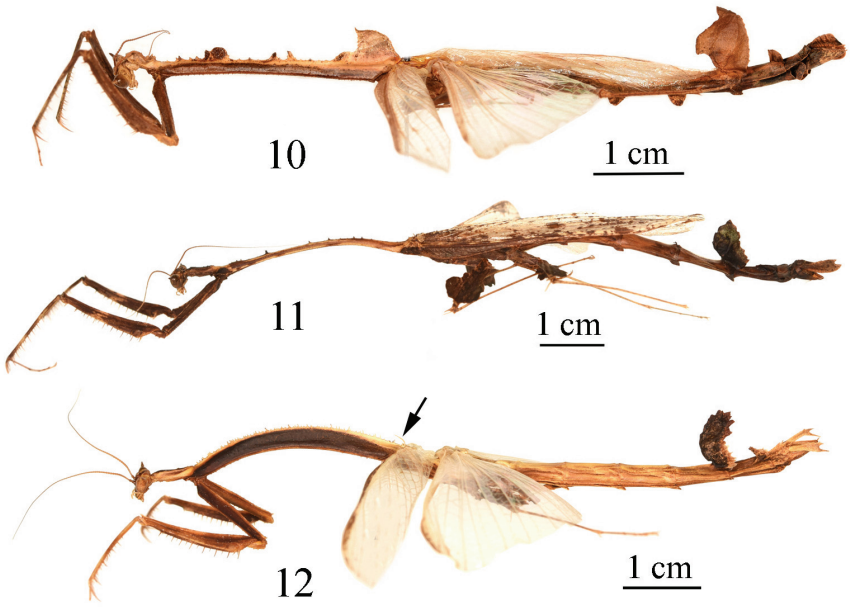
MATERIAL EXAMINED. **Thailand**: Khorat [Nakhon Ratchasima province], Wang Nam Kheao district, Sakaerat Envirolmental Research Satation, 29.II 1968, 1 male (THNHM-I-11228, THNHM), S. Sittilert leg. Holotype male images, source BMNH Data Portal.

DIAGNOSIS. ***Adult male***. Head triangular, compound eye conical with anterior spine; pronotum in profile view, relatively long and straight, metazona much longer than fore coxa, with a large foliaceous lobe at posterior that is larger than other metazonal lobes; middle coxa and hind coxa with tridentate lobes, femora with two distinct lobes, strongly bilobed, distal lobe being largest, with distinct acute projection apically; wings not reaching abdominal tergite 5th, costal area of forewing and hind wing are opaque brown and translucent brown respectively; abdomen slender; abdominal tergite 5th with large medial lobe; abdominal sternite 3rd, 4th with well-developed medial lobes; cerci short and flat: apical cercomere not bifurcate. ***Male genitalia***. Right phallomere, with pilosity field, **pva** with well-developed projection covered with pilosity, **fda** elongated. Ventral phallomere, **sdp** elongated, curved

to right side, posterior margin slightly concave and apex not well sclerotized. Left phallomere, **aafa** widely separate from **pafa** well slerotized, curved projection with small acute apex, **pafa** is a well sclerotized spine, **loa** pilose, **paa** of hook-like shape.

DISTRIBUTION. Thailand (**new record**). – China (Wang, 1993), Vietnam (Thinh, 2010), Myanmar (Uvarov, 1927; Roy, 2009), West Malaysia, Sabah (Roy, 2009).

REMARK. Most morphological characters of male examined agree well with the images of the holotype but the median lobe on 5th abdominal tergite relatively broader than that in the holotype and this lobe is similar to those in Sabah population (see Roy, 2009: 161, fig. 55).



Figs 10–12. Praying mantis, male body, lateral view. 10 – *Paratoxodera meggitti*; 11 – *Stenotoxodera porioni*; 12 – *Toxodera fimbriata*.

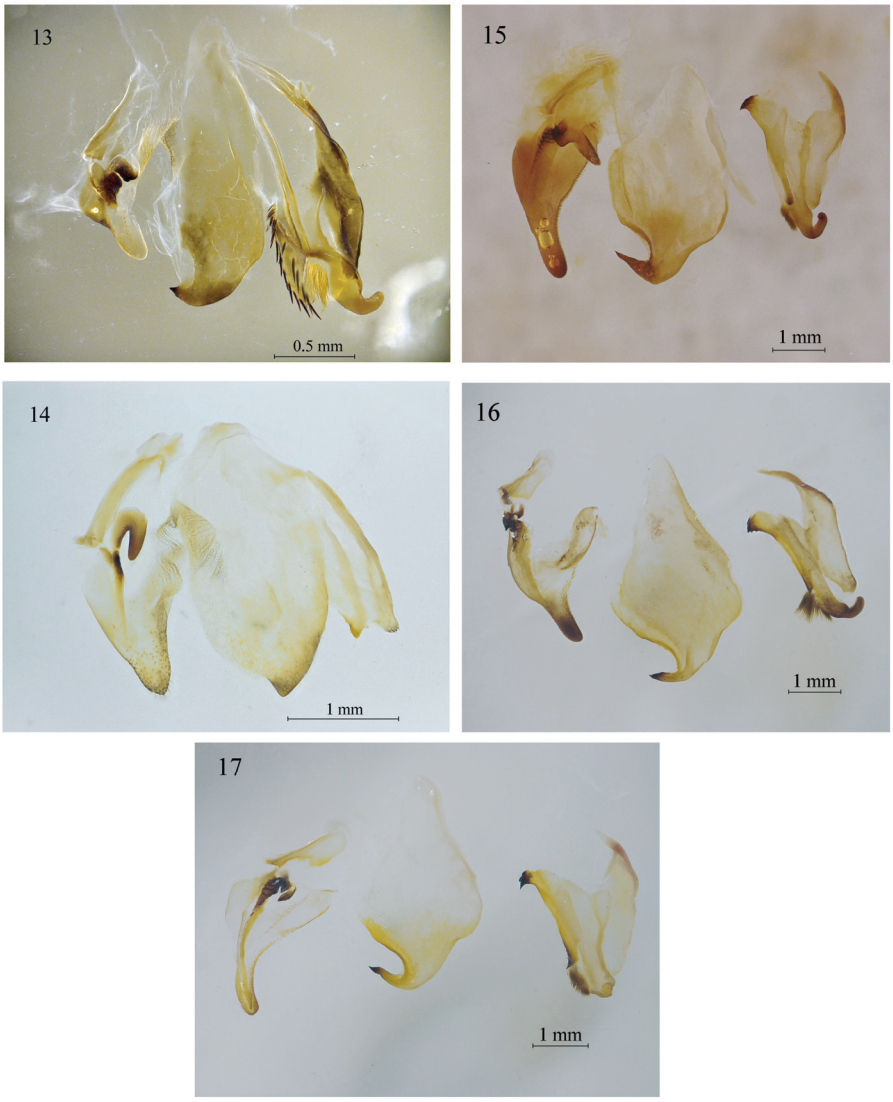
***Stenotoxodera porioni* Roy, 2009**
Figs 8, 11, 16

Stenotoxodera porioni Roy, 2009: 173. fig. 66. Type locality: West Malaysia (MNHN, holotype and paratypes).

MATERIAL EXAMINED. **Thailand**: Nakhon Si Tharmmarat province, Tropical rainforest Krung Ching Waterfall (WF.), 21.I 2007, 1 male (THNHM-I-11229, THNHM), N. Pinkhaw leg.; holotype male, source MNHN Data Portal.

DIAGNOSIS. ***Adult male***. Head triangular, wider than long, compound eye conical with spine-like projection; pronotum in profile view, relatively long and narrow, slightly curved up: metazona much longer than fore coxa; dorsal outline of metazona in profile view with

several small projections; middle femur and hind femur with large foliaceous lobes, of violin-like shape, with distinct spine apically; wings not reaching abdominal tergite 5th, costal area of fore wing opaque brown, other area of fore wing with dense brown spots costal area of hide wing translucent brown; abdomen slender, abdominal tergite 5th with large medial lobe; cerci long and flat: apical cercomere in profile view with 2 lobes, the lower lobe slightly wider



Figs 13–17. Male genitalia, ventral view. 13 – *Didymocorypha lanceolata*; 14 – *Parapsychomantis vietnamensis*; 15 – *Paratoxodera meggitti*; 16 – *Stenotoxodera porioni*; 17 – *Toxodera fimbriata*

and longer than the upper one. ***Male genitalia***. Right phallomere, with pilosity field, **fda** elongated. Ventral phallomere, **sdp** elongated, curved to right side, anterior margin straight and sloped apically, apex well sclerotized. Left phallomere, **aafa** widely separate from **pafa** well sclerotized, slightly curved projection with very small acute spike, **pafa** well sclerotized spine, **loa** relatively long and pilose, **paa** of hook-like shape.

DISTRIBUTION. Thailand (**new record**). – Sabah (Schwarz & Konopik, 2014), East Java, West and East Malaysia (Roy, 2009; Schwarz & Konopik, 2014).

REMARK. This record is the northern most distribution range of the species in Sundaland. So far only two species have been described in the genus *Stenotoxodera*. This species can be distinguished from *S. pluto* (Rehn, 1909) by following characters: 1) foliaceous expansions of mid and hind femora with dark coloration: posteroventral margin narrowing medially, 2) apical cercomere strongly indented.

Toxodera fimbriata **Werner, 1930**
Figs 9, 12, 17

Toxodera fimbriata Werner, 1930: 9. Type locality: INDONESIA, Sumatra (NHRS, holotype male).

MATERIAL EXAMINED. **Thailand**: Narathiwat province, Wang District, Loh Jood Subdistrict, Hala-Bala Wildlife Research Station, 23.III 2018, 1 male (THNHM-I-11230, THNHM), W. Jaitrong leg.

DIAGNOSIS. ***Adult male***. Head triangular, compound eye conical with a spine-like projection; metazona in profile view, relatively long, strongly curved up, dorsal outline of metazona with dense denticles; posterodorsal angle of metazona in profile view, with long and recurved spine (black arrow in fig.12); middle femur and hind femur with large lobes, their posteroventral margin shredded; femora with distinct projection apically; wings not reaching abdominal tergite 5th, costal area of forewing and hide wing with yellowish-brown opaque and translucent brown respectively; abdomen slender, abdominal tergite 5th with large medial lobe; cerci long and flat: apical cercomere in profile view with two lobes, the lower lobe clearly narrower and longer than the upper one. ***Male genitalia***. Right phallomere, with pilosity field, **pva** with well develop projection covered with pilosity, **fda** elongate. Ventral phallomere, **sdp** elongated, curved to right side, posterior margin strongly concave apically, apex well sclerotized. Left phallomere, **aafa** widely separated from pafa a well sclerotized and strongly curved projection, **pafa** is a well sclerotized spine, **loa** pilose, **paa** of hook-like shape.

DISTRIBUTION. Thailand (**new record**). – Myanmar, Borneo, West Malaysia, Sumatra (Roy, 2009).

REMARK. Currently four species of the genus have been recorded from Thailand (Roy, 2009) and we record the 5th species for this country. This species is characterized by follow characters: 1) metazona in profile view, strongly curved up; 2) dorsal outline of metazona with dense denticles.

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